

INFRASTRUCTURE REQUIREMENTS TO SERVE A 30+ TCF NATURAL GAS MARKET

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Description

Changes in the natural gas industry during the past 10 years have been significant and include regulatory reform designed to reshape the industry and increase competition. Gas supply sources have diversified and end-use markets are expanding and shifting. In addition to these sweeping changes, the demand for natural gas is expected to grow substantially in the U.S. throughout the foreseeable future. To meet this growing demand in the most economical, reliable, and timely manner, strategic infrastructure investments in transmission pipelines, distribution lines, and storage and peak shaving facilities will be required. Beyond policy and technology, an acute requirement to implement effective *critical infrastructure protection* exists, which must be fully addressed in support of energy security goals. What is needed at the present time are new and insightful assessments in order to plan and prepare for natural gas delivery in a 2020 marketplace.



Source: INGAA

Background

The demand for natural gas in the continental U.S. is projected to grow from 22 trillion standard cubic feet (Tcf) in 1999 to nearly 34 Tcf in 2020 [EIA; 12/01]. All consuming sectors are expected to experience demand increases, but with the bulk of the growth largely driven by new gas-fired electric power plants. In order to serve the 30+ Tcf market, substantial amounts of new transmission, distribution and natural gas storage capacity will be needed. Transmission and distribution lines are constantly being built to serve the dynamic natural gas market and more will be required in the future. However, as demand for natural gas in the electric power industry grows, the need for more flexibility in the delivery mechanism will also increase because of evolving demand profiles. It is imperative that an appropriate (optimal) set of options be identified to deliver gas to market – especially to key market *nodes*.



Source: INGAA



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RELEVANT INVOLVED PARTIES

Merchant Power
Generators

Interstate Pipeline
Companies

Local Distribution
Companies (LDC's)

Natural Gas Storage
Facility Operators

Energy Commodity
Traders

R&D Community

Industry Trade Groups

RELATED LINKS

**Interstate Natural Gas
Association of America
(INGAA)**

www.ingaa.org

**National Petroleum
Council (NPC)**

www.npc.org

**Energy Information
Administration (EIA)**

www.eia.doe.gov

**Gas Technology Institute
(GTI)**

www.gastechnology.org

Significance/Potential Impacts

Infrastructure additions and system expansions with built-in flexibility and reliability are essential for ensuring an optimally responsive natural gas industry. Substantial investments in infrastructure are unavoidable. However, *more pipe* is not the only way of serving a growing and dynamic market – especially given the unique operating characteristics of the power generation sector. Just as important as asset additions and operational improvements – if not more so – is the heightened need for improved physical and cyber security of the U.S.' natural gas infrastructure. Clearly, it will take thoughtful development and integration of policies, incentives, regulations, and RD&D to achieve the full potential of natural gas in the U.S.' energy portfolio.



Source: INGAA

How SCNG is Addressing the Issue

Complementing ongoing infrastructure reliability and storage R&D at the National Energy Technology Laboratory (NETL), the Strategic Center for Natural Gas (SCNG) has commissioned a study that will provide an updated and comprehensive assessment of the U.S.' natural gas infrastructure. The study is scheduled for completion in spring 2002 and is designed to:

- Investigate how the non-traditional electric power market, which is projected to dominate future demand, and other factors will affect the level and timing of regional and *local* natural gas markets.
- Determine gaps between projected demand and existing/planned infrastructure regionally and at significant demand *nodes*.
- Develop and enhance cost algorithms for different infrastructure options, namely: traditional and advanced-concept storage, full-cycle liquefied natural gas, propane-air for peak shaving, and transmission and distribution pipelines including looping and compression add-ons.
- Recommend location-specific best-fit infrastructure options for meeting projected demand, taking into account how various alternatives may affect reliability, longevity, operational flexibility, and future service rates.
- Provide guidance for future RD&D investment including the area of infrastructure security.